I CLAIM:

CLAIM 1. A method of roasting coffee beans in a roasting chamber that includes a pan having a bottom and sidewalls, the method comprising,

placing a mass of green coffee beans on the pan bottom in one layer or more layers,

heating the pan bottom to transfer heat by conduction from the pan bottom to the one layer for substantially roasting the mass of beans,

after the beans are sufficiently roasted, flowing air at high speed through the mass of beans to mix or swirl and cool the roasted beans within the roasting chamber.

CLAIM 2. The method of Claim 1 wherein the mass of beans are at rest on the pan bottom during substantial roasting thereof.

CLAIM 3. The method of Claim 2, wherein the chamber comprises a transparent portion to allow an operator to visually inspect roasting beans, the method further comprising removing smoke particles and steam from above the roasting mass of beans to enable the operator to better visually inspect individual roasting beans.

CLAIM 4. The method of Claim 3, further comprising preventing most of the removed smoke particles from exhausting to the ambient air while exhausting a small

amount of smoke particles to the ambient air to enable the operator to use roasting odor as a indication of roasting completion for the mass of beans.

CLAIM 5. The method of Claim 4, wherein said preventing step includes flowing air within the chamber to carry the smoke particles through a filter.

CLAIM 6. The method of Claim 5, wherein the filter includes openings to enable at least some smoke particles smaller than 0.1 micron to exhaust into the ambient air.

CLAIM 7. The method of Claim 3, wherein the mass of beans remain substantially at rest during said removing step.

CLAIM 8. The method of Claim 7, wherein said roasting includes transferring heat by conduction from the one layer of beans to any beans resting on the one layer of beans.

CLAIM 9. The method of Claim 8, wherein using electric power as the only source of power for flowing the air and for said heating.

CLAIM 10. The method of Claim 3, further comprising mixing or circumferentially swirling the mass of beans during said removing step.

CLAIM 11. The method of Claim 10, wherein said heating occurs during said mixing or swirling step.

CLAIM 12. The method of Claim 3 wherein said removing step includes during a first phase flowing air from the central region of the pan bottom toward the sidewalls, the flowing air speed being insufficient to move the mass of beans.

CLAIM 13. The method of Claim 3 wherein said removing step includes during a first phase flowing low speed air from the central region of the pan bottom toward the sidewalls, the low speed air being insufficient to move the resting mass of beans, and during a second phase flowing high speed air from the central region of the pan bottom toward the sidewalls, the high speed air being sufficient to mix or circumferentially swirl the mass of beans.

CLAIM 14. The method of Claim 13 wherein the first phase lasts substantially within the period of 2 to 5 minutes and the second phase lasts substantially within the period of 10 - 30 seconds.

CLAIM 15. The method of Claim 14 wherein said heating occurs while the mass of beans remain at rest and while the mass of beans are being mixed or swirled.

CLAIM 16. The method of Claim 15 wherein said first phase precedes said second phase and said phases repeat sequentially for the duration of the roasting step.

CLAIM 17. The method of Claim 16 wherein a transition between a second phase and a subsequent first phase includes a gradual reduction from flowing high speed air to flowing of low speed air.

CLAIM 18. The method of Claim 17 further including vibrating the bottom of the pan at least during said transition to better distribute the mass of beans on the pan bottom after they have been mixed or swirled.

CLAIM 19. The method of Claim 13 further comprising collecting chaff carried by the high-speed air at a location separate from the mixing or swirling mass of beans.

CLAIM 20. The method of Claim 1 wherein said flowing air moves from the central region of the pan toward the sidewalls.

CLAIM 21. The method of Claim 20 wherein said flowing air also flows circumferentially within the pan.

CLAIM 22. The method of Claim 23 wherein the flowing air mixes or swirls the mass of beans.

CLAIM 23. The method of Claim 22 wherein the flowing air carries chaff away from the mass of beans.

CLAIM 24. The method of Claim 23 wherein the flowing air is drawn from the ambient air outside of the pan.

CLAIM 25. The method of Claim 24 wherein the flowing air step lasts substantially within the period of 7 - 10 minutes for an approximate 1 - 2 cups of initial mass of green beans.

CLAIM 26. A product made by the method of Claim 1.

CLAIM 27. An apparatus for roasting and cooling a mass of green coffee beans, cooling the roasted mass of beans and removing chaff from the mass of roasted beans comprising:

a surface for supporting a mass of green coffee beans in one or more layers,

heating means for heating said surface for roasting the mass of green coffee beans substantially by conduction heat transfer between said surface and the one layer of beans and from the one layer to any beans resting on the one layer of said mass of beans

airflow means for cooling the mass of roasted beans and removing chaff from the mass of beans.

CLAIM 28. An apparatus according to Claim 27, wherein said airflow means further separates the chaff from the mass of beans during cooling of the mass of beans.

CLAIM 29. An apparatus according to Claim 27, wherein said airflow means includes a radial blower.

CLAIM 30. An apparatus according to Claim 29, wherein said air flow means generates high speed airflow that moves the mass of beans in patterns that causes some of the mass of beans to contact others of the mass of beans to remove at least some of the chaff from the contacting beans.

CLAIM 31. An apparatus according to Claim 27, wherein said heating means produces smoke and odor in the mass of beans, the apparatus further comprising filter means for filtering the smoke during the flow of high speed air.

CLAIM 32. An apparatus according to Claim 29, further including collection means for collecting the chaff carried by the high-speed airflow.

CLAIM 33. An apparatus according to Claim 29, wherein said surface has a central region and a continuous outer edge, and said blower directs the airflow from said central region toward the outer edge.

CLAIM 34. An apparatus according to Claim 33, wherein said blower also direct the airflow to flow circumferentially relative to its rotation axis.

CLAIM 35. An apparatus according to Claim 33, further comprising control means to operate said blower to generate a high speed airflow and a low speed airflow said high speed airflow for mixing or swirling the mass of beans

and the low speed air flow being insufficient to mix or swirl the mass of beans.

CLAIM 36. An apparatus according to Claim 35, further comprising sidewalls integral with said surface for forming a pan.

CLAIM 37. An apparatus according to Claim 36, further comprising a cover assembly for closing with said pan to form a roasting chamber.

CLAIM 38. An apparatus according to Claim 37, wherein at least a portion of said chamber includes a transparent surface to permit visual inspection of said mass or beans or individual beans of said mass of beans.

CLAIM 39. An apparatus according to Claim 38, wherein the mass of beans emits smoke with said chamber when roasting.

CLAIM 40. An apparatus according to Claim 39, wherein said blower, when generating slow speed airflow draws in ambient air and exhausts air and smoke from the chamber to enable the operator to visually inspect the color and condition of the roasting beans of said mass of beans while the mass of beans is at rest on said surface.

CLAIM 41. An apparatus according to Claim 38, wherein said cover assembly includes a glass cover comprising said transparent surface.

CLAIM 42. An apparatus according to Claim 41, wherein said heating means produces smoke and odor in the mass of beans, the apparatus further comprising filter means for filtering the smoke and odor during the flow of high speed air.

CLAIM 43. An apparatus according to Claim 42, wherein said cover comprises a cover opening for enabling air to exit said chamber and said filter filters air that leaves the chamber through said cover opening.

CLAIM 44. An apparatus according to Claim 43, wherein said cover opening is in the center region of said cover.

CLAIM 45. An apparatus according to Claim 42, wherein said cover includes a continuous outer portion and said filter is arranged between said continuous outer portion and said sidewalls.

CLAIM 46. An apparatus according to Claim 45, wherein said filter extends substantially completely around said sidewalls and said continuous outer portion.

CLAIM 47. An apparatus according to Claim 45, further including collection means for collecting chaff carried by the airflow.

CLAIM 48. An apparatus according to Claim 47, wherein said collection means is located contiguous to said continuous outer portion and said filter.

CLAIM 49. An apparatus according to Claim 27, wherein said heating means includes an electric resistance element.

CLAIM 50. An apparatus according to Claim 49, wherein said airflow means includes an electrically powered radial blower mounted for rotation relative said surface.

CLAIM 51. An apparatus according to Claim 50, wherein said surface is non-porous except for an opening through which said blower can draw cool ambient air for generating the airflow.

CLAIM 52. A method of roasting and cooling a mass of coffee beans and removing smoke and chaff from the mass of beans comprising:

forming a mass of green coffee beans on a surface,

roasting the mass of beans while they are at rest on the surface substantially by conduction heat transfer from the surface to the mass of beans

cooling the mass of beans and

during the cooling step removing chaff from the mass of beans.

Claim 53. The method of Claim 52, further comprising removing the chaff from the mass of beans during the cooling step.

Claim 54. The method of Claim 52, wherein said removing step includes maintaining the surface stationary

and applying an air stream for moving the mass of beans relative to said surface.

Claim 55. The method of Claim 54, wherein the airstream moves the mass of beans relative to the surface in patterns that causes some beans to contact other beans.

Claim 56. The method of Claim 52, further comprising producing smoke and odor during the roasting step and filtering the smoke during the cooling step.

Claim 57. A product made by the method of Claim 56.